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MAKING BUSINESS POLICIES AND STRATEGIES IN THE VUCA ERA WITH TECHNOLOGY DEVELOPMENT: A LITERATURE REVIEW

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ABSTRACT

Introduction. Entering the VUCA era, which stands for Volatility, Uncertainty, Complexity, and Ambiguity, is a business situation that leads to uncertainty and is volatile, causing anxiety among business leaders. Creating a business opportunity in the VUCA era requires a strategy owned by many individuals and companies. Being able to run a business in the short term in the VUCA era is not enough, every company certainly wants the business processes they run to be sustainable. So far, the pattern of business thinking is still dominated by short-term thinking. Companies need to innovate to ensure the sustainability of their business processes.

Objective. To review the VUCA era and what strategies companies should do to face the VUCA era.

Method. The method used is literature research using Elsevier, Science Direct, or other databases to identify the essential attribute of materials. There are 29 pieces of literature found in the database related to the topic.

Result and Conclusion. To overcome VUCA era, it is necessary to apply some strategies like vision, understanding, clarity, and agility. If this solution applied, the company can produce innovations or breakthroughs that are getting better, it will also have a good impact on the company's future sustainability.

1. Introduction. We realise now that apart from that we are entering a disruptive era, where many changes occur due to technological advances. Rapid technological growth has led to intense competition and an accelerated rate of innovative change in the market. Besides that, apart from the era of disruption, we are also now entering the VUCA era., which stands for Volatility, Uncertainty, Complexity, and Ambiguity. Volatility means a state of uncertainty and vulnerability to change. Uncertainty is an uncertainty and situation full of surprises that can occur at any time. Complexity is a situation full of complexity, and Ambiguity is a floating state that causes confusion to read directions clearly. The term VUCA was popularised by the Indonesian army as a means to teach leadership techniques on the battlefield (Aribowo, 2018).

The VUCA era describes a business situation that leads to uncertainty and is volatile, causing anxiety among business leaders. In the VUCA era, there were many old professions collapsing, but there were also new professions emerging. One of the keys for businesses to remain competitive in the VUCA era is in the role of leaders. of course, in this VUCA era, business leaders need to do something so that

the business they run can run sustainably. Creating a business opportunity in the VUCA era requires a strategy that must be owned by many individuals and companies (Aribowo, 2018).

The opening of opportunities for foreign investors to enter Indonesia has an impact on business competition which is unavoidable. In Indonesia itself, the VUCA era has also been promoted by many experts that business people in Indonesia must be vigilant and prepare strategies in the VUCA era. Moreover, Indonesia is currently referred to as one of the countries that has the potential as one of the countries that has a large economic capacity in the world. A global consultancy agency McKinsey predicts that Indonesia has the opportunity to be ranked 7th in the world economy by 2030, surpassing Germany and the UK (Aribowo, 2018).

Being able to run a business in the short term in the VUCA era is not enough, every company certainly wants the business processes they run to be sustainable, so far the pattern of business thinking is still dominated by short-term thinking, this shows that long-term thinking is still grey and It's full of uncertainty, but whether this short-term business mindset must be changed considering the level of business competition and competition factors are getting higher, so companies need to innovate to ensure the sustainability of the business processes they run (Aribowo, 2018).

2. Literature Review.

a. **VUCA.** The current Coronavirus crisis calls into question the conventional attitude to risk and even to notions of a world of increased VUCA (volatility, uncertainty, complexity, and ambiguity). The existence of radical uncertainty suggests that the world is nonergodic. An ergodic process is one whose properties can be deduced from a single (sufficiently long) random sample of the process. Nonergodic processes change erratically at an inconsistent speed. In an ergodic process, every sequence or sizable sample is equally representative of the whole. Consequently, this provides the condition that, in an interval of sufficient duration, a system will return to states that are closely similar to previous ones. This can by no means be assumed in the current crisis (Buckley, 2020).

The global system will be subject to hysteresis, that is the phenomenon in which the value of the physical properties of an entity lag behind the effect causing them. Thus, the output of a system depends not only on its current input but also on its history of past inputs. Thus, the history of the system affects the value of its internal state. Hysteresis in the form of increased VUCA may spell the end of long GVCs and result in a more localised world. A potential countervailing force may come from technological advancements however; for example, Blockchain can substitute for personal trust and information flows can to some extent substitute for physical trade flows. The role of logistics companies will be pivotal in the future. The export proportion of GVCs was already falling pre-virus as higher value-added elements of GVCs were being "reshored". This accelerating trend, as Petricevic and Teece suggest, will be a feature of the post-virus world (Buckley, 2020).

There is a sense in which the Petricevic and Teece analysis is an attempt to bring certainty into a VUCA world. After all, if we can identify "the fracture" between China and the USA as the main source of instability, the world becomes more predictable and VUCA is, by definition, reduced. Indeed, it is by amassing knowledge that we can confront the elements of a VUCA world. This is true also of the reaction of company strategy to VUCA. The causality runs from policy instability (rather like monetarist economics) that reshapes global governance, to VUCA, which then affects institutions at various levels (supra-national, national, and subnational). Peticevich and Teece state that the structural reshaping of globalisation "will require new tools and frameworks" (p. 1495). This is presumably with respect to the "cascading" mechanism in figure 1 that traces the sequencing of these effects (the timing of events is much more difficult to predict) (Buckley, 2020).

b. **Strategic and Non Strategic Industries.** Petricevic and Teece are fond of dichotomies. Their industrial analysis divides strategic from non strategic industries. This division is created by definition (and is somewhat confused) and is chosen in preference to placing industries on spectra such as more or less trade-intensive, more or less defence related, more or less government procurement intensive, the extent of subsidisation. However, key features of the analysis are worthy of further investigation. They argue that a strategic industry provides social benefits beyond its direct value added. This is essentially the creation of positive externalities. These include spillovers from innovation and locational synergies. These Marshallian effects are best analysed in an internalisation framework. Firms create both positive and negative externalities that provide opportunities for further growth by internalisation by other firms (Buckley, 2020). Being able to run a business in the short term in the VUCA era is not enough, every company certainly wants the business processes they run to be

sustainable, so far the pattern of business thinking is still dominated by short-term thinking, this shows that long-term thinking is still grey and It's full of uncertainty, but whether this short-term business mindset must be changed considering the level of business competition and competition factors are getting higher, so companies need to innovate to ensure the sustainability of the business processes they run (Aribowo, 2018). Other research shows that the contextual aspects, such as distributive justice, procedural justice, and social capital, play a large role in elaborating satisfaction and organizational commitment (Tjahjono, Fachrunnisa, & Palupi, 2019). Distributive and procedural justice are vital predictors. Similarly, the configuration of these variables play a role in explaining affective commitment. Another important finding is that social capital, as a subjective perspective, plays a significant role in explaining affective commitment (Tjahjono H.K, 2015).

Locational externalities provide the rationale for different trajectories of growth in different countries and sub-country clusters. The creation of public goods by "technically progressive" innovations provide bases for growth for related industries. For completeness, we should add the development of "merit goods", including education. Investigation of these attributes may give us better government policy prescriptions than those derived from "techno-nationalism". The Petricevic and Teece analysis provides a new take on the case for subsidy in public policy but not the means for a complete analysis. The emphasis on appropriation is central to their analysis, and to the notion of dynamic capabilities, but a wider vision is necessary. Such an extension would require a careful investigation of competition in creating innovative goods and services, entry barriers, regulation, and investment requirements. The externalities that "strategic industries" create are well worthy of deeper investigation and, in the age of the platform as an appropriation mechanism and anti-competitive device, the Petricevic and Teece piece is pioneering.

3. Research Method. The study implemented literature research methodology. Literature research methodology is to read through, analyse and sort for about 29 articles on Elsevier, Science Direct or other database in order to identify the essential attribute of materials.

4. Result and Discussion. Based on the results of the literature review from the research that has been done previously, it can be summarized in the table below.

Table 1. Resume of business strategy and policy research in the VUCA era

Literature	Resume
Raja, 2021	**Business Research in the VUCA World** Business managers have to be smart and flexible and no longer allow the firms to be laggards; rather they have to set up a new phase to be creative, intelligent, agile and passionate. Business managers should frame a flexible plan and work accordingly without being rigid and traditional. They are flexible to adapt to the changing environment and have the potential to train the employees to be agile.
Tamara *et al.,* 2021	**Design Thinking as A Strategy in Facing VUCA** The effective design thinking combines the creativity and discipline needed to get a new project up and running. According to "The Straits of Success in a VUCA World" Journal there are a few critical thinking pointers that you could use to tackle the sheer dynamism of a VUCA world: 1). For volatile situations. Separating facts from opinions is the key. So is formulating thoughts objectively and precisely as well as ensuring clarity in communication; 2). For uncertain situations. Listening and comprehension is vital. Being open-minded about alternative points of view and dealing with contradictions are also necessary in such situations; 3). For complex situations. One needs to gather facts from various sources, do logical enquiry and reasoning and also weigh the alternatives. Weighing alternatives, making decisions under pressure and testing the solutions against relevant criteria are also vital; 4). For Ambiguous situations. Curiosity, eliciting, and evaluating arguments; asking the right questions; adaptability and agility in thinking as well as seeing the consequences and likely implications are essential in such circumstances. Quite simply, critical thinking is excellence in thought processes which precedes excellence in our actions.
Franseren, 2019	**Hospital Strategic Planning in the VUCA Pandemic Era COVID-19** The challenges of health services are very extreme and widespread due to the COVID-19 pandemic crisis for which VUCA (Volatile, Uncertain, Complex, and Ambigue) needs to present a strategic plan so that the health care system in hospitals continues and is able to face every obstacle during this pandemic. Responding to this condition, hospitals need to carry out organisational reforms while still establishing service ethics, prioritising patient safety, professionalism, agility, building leadership strategies, and carrying out risk management. All of this requires the support and collaboration of effective corporate governance and hospital clinical governance. As a High Reliability Organization (HRO), hospitals also need to take a top-down management approach.

Millar *et al.*, 2018	**Management Innovation in a VUCA World: Challenges and Recommendations** Customers no longer meekly wait for and try out products and services, customers want to experience, cocreate, and cotransform. This requires an integrated approach, a multistakeholder understanding, and interaction like a war room experience between the various departments and units—from strategic planning, product design, NPD (new product development), and portfolio management to technology and operations management. And all this needs to be agile to work within the VUCA environment.
Azahari et al. 2021	**The Influence of Leadership Style on Employee Performance in Fintech Companies Xyz Funding in the Vuca Era** This literature describes the influence of the leadership style used in a company in the VUCA era. It can be used that the strategy is a leadership style that requires high attention to the implementation of work. A work style leader is a person whose main concern is to carry out and complete work efficiently.
Aribowo and Wirapraja, 2018	**Innovation Strategy in Management of Sustainability Business in Facing the Vuca Era** The results of this study discuss the implementation of innovation in order to support business sustainability, among others, by strengthening existing research and development, continuing to develop digital skills and trying to implement the latest technology prototypes. So the strategy used in the VUCA era is to create leaders who create high, with a high innovation mindset, a culture of innovation will be born in the company.
Naufaldi, 2021	**Analysis of the Influence of Worker Training and Leadership Ability to Employee Performance in the Vuca Era** The results of this study discuss the **strategy related to agile leaders** who will make the right decisions about what is needed by human resources to improve company performance in the face of the VUCA era.
Darwin, 2020	**Comparison Of Disruption Theory in Marketing in Vuca Era Industry** The new ways that are used by producers as a strategy of increasingly intelligent and open consumer behaviour are increasingly sophisticated due to technological developments. So everything that changes as a result of disruption and innovation develops, which gives rise to the impetus for efforts to create new markets, new methods, and new technologies to replace old markets, old methods, and old technologies.
Baran and Woznyj, 2020	**Managing VUCA: The human dynamics of agility** Fostering agile behaviour need to learn and apply agile tools as appropriate, assess meeting cadence and adjust to meet workflow requirements, and continually groom the backlog of team tasks for proper prioritisation
Setiawati, 2021	**The Effect of Agile Leadership and Work Environment to Employees' Performance in a VUCA World (Study on Millennial Generation Employees in Jabodetabek)** Agile Leadership has a positive and significant effect on employee performance. This means that Agile Leadership changes will change Employee Performance in the same direction. In other words, strategic leaders have more Agile Leadership abilities, the leader who understands, have a good vision and be able to adapt to the changes that occur in the VUCA era
Schulze *et al.* 2021	**Five core resilience factors to overcome VUCA friction were identified** Five core resilience factors to overcome VUCA friction were identified (1) a robust mandate, (2) the use of established networks, (3) fast onboarding and securing commitment of project partners, (4) informed planning of supply capacity, and (5) securing the availability of critical items. The method of the present analysis (VUCA factors combined with analyses of possible failures, and management of stakeholders and risks) can theoretically be adjusted to any public health care emergency anywhere across the globe. Mindful leadership in a learning organisation is of essence in comparable VUCA scenarios.
Buckley, 2020	**The Theory and Empirics of The Structural Reshaping of Globalisation** This paper has used internalisation theory to confront the theoretical and empirical challenges arising from techno-nationalism and associated increases in VUC. Internalisation theory does not rely on esoteric knowledge, diagnostic interpretation, nor in group jargon. It can be applied by anyone with a grasp of its few fundamental principles. The global economy faces a massive challenge from Covid-19 and its aftermath. This could not have been anticipated by Petricevic and Teece, but it does fall within the ambit of their theorising, as it further accelerates VUCA elements in the world economy and society.
Appelbaum, 2017	**The challenges of organisational agility** Components to respond to the challenges of organisational agility, e.g. strategic commitment, environmental scanning and adaptable network structures.
Baran, 2020	**Managing VUCA: The human dynamics of agility** Connection between obstacles to manage VUCA and the recommended practises for overcoming these challenges. Precondition of leaders' sense needs and opportunities for change.

Baškarada, 2018	**The 5S organisational agility framework: a dynamic capabilities perspective** Agile framework consisting of sensing, searching, seizing, shifting, and shaping as an agile response to external changes.
Bennett, 2014	**What a difference a word makes: Understanding threats to performance in a VUCA world** Distinctions within the VUCA framework on how these challenges can be effectively addressed. This includes agility, information, restructuring and experimentation.
Cegarra, 2020	**Structured knowledge processes and firm performance: The role of organisational agility** Organizational agility mediating the relationship between knowledge application and form performance. Precondition is a conversion process of the acquired knowledge.
Cegarra-Navarro, 2016	**The effect of organisational memory on organisational agility** Transferring and retrieving knowledge to stimulate the creation of intellectual capital and analyze the constantly changing environment to adapt and change if necessary.
Khan, 2021	**The Emerging Paradigm of Leadership for Future: The Use of Authentic Leadership to Lead Innovation in VUCA Environment** The yesteryear's rapid staling rate of products and services along with an ever expanding commanding role of employees, as knowledge workers are more actively getting the central stage, is joined by COVID-19 to add to the complications of the organisations. In such a fuzzy environment, the change in way of leadership is correctly called for. Employees in the current era are not inclined to buy the idealised influence and charisma of the leader. They, instead, expect their leaders to show authenticity. The need for authenticity is further necessitated by leaders' compulsion to adjust their decisions as more information reduces ambiguity. The use of idealised influence and charisma do not hold much chance to succeed as both of them compel the leaders to stick to the past decision while the need of the hour is to be ready.
Rimita, Hoon, & Levasseur, 2020	**Leader Readiness in a Volatile, Uncertain, Complex, and Ambiguous Business Environment** Strategies leaders use to overcome and win in highly VUCA environments. Business agility, workforce, and demand coping strategies and preparedness planning, recovery management principles, change orientation, and new leader competencies stand out.
Bawany, 2018	**Developing A High-Performance Organisation in a VUCA World** The influencing factors in the organisational development process include emotional & social intelligence, cognitive readiness, management & leadership development for performance, effective negotiation & conflict management and cross-cultural communication & diversity management. A company will run effectively if it has leaders with high emotional and social intelligence competencies.
Codreanu, 2016	**A VUCA Action Framework for a VUCA Environment (leadership Challenges and Solutions)** In this study, it was stated that strategies that could be taken to overcome VUCA include: Vision, one needs to have one is not forecasting the future, but creating the future through action. Understanding becomes a key word and entails a number of requirements on behalf of leaders, such as: openness; accountability; setting boundaries through clear expectations and objectives; willingness to tackle tough issues; listening and relational skills; regular communication; mirroring the behaviour you want to see; giving trust to others. Clarity is the opposite of simplicity and certainty. Agility is related to being "networked and flexible, lightweight, and replicable".
Krawczyńska-Zaucha, 2019	**A New Paradigm of management And Leadership in the VUCA World** The new paradigm in the management and leadership process is courage in overcoming realities such as volatility, uncertainty, complexity and ambiguity. In the process of overcoming these challenges, instability requires flexibility, uncertainty requires the ability to see certainty with agility in decision making.
Raghuramapatruni, 2017	**The Straits of Success in a VUCA World** VUCA prime proposes that Volatility can be combated by having a clear sense of Vision. In VUCA prime the antidote to Uncertainty is Understanding. VUCA prime suggests combatting Complexity with Clarity. Finally, VUCA prime proposes Agility as an antidote to Ambiguity.
Nowacka and Rzemieniak, 2021	**The Impact of the VUCA Environment on the Digital Competences of Managers in the Power Industry** Key behaviors and skills in the VUCA environment are situational awareness, focusing attention, interpersonal intelligence, system awareness, intuition, ability of quick learning, curiosity, ability to adapt to the environment, tolerance to uncertainty, the ability to adopt the role of an observer, and cognitive empathy.
Bennett and Lemoine, 2014	**Understanding Threats to Performance in a VUCA World** Agility is key to coping with Volatility. Information is critical to reducing Uncertainty. Restructuring internal company operations to match the external. Complexity is the most effective and efficient way to address it. Experimentation is necessary for reducing Ambiguity.

Ciceklioglu, L.H. 2020	**VUCA Concept and Leadership** Manage and leads in today's world and business life have to employ qualified individuals. It is mentoring skills, able to create a co-productive structure, collective thinking skills, agility to increase team speed and focus, storytelling skills, able to observe from outside the circle, creating design thinking processes, ability to diversify resources by taking a proactive approach to meet needs, ability to create control mechanisms, development of connection management capabilities.
Bawany, 2018	**Leading in a Disruptive VUCA World** Keeping the organisation's vision as the main goal can be done to cope with the ups and downs of the changing economy. Uncertain situations can be overcome by better understanding what is happening by watching and listening. Seeking clarity can be used to deal with very complex and confusing situations. Meanwhile, situations that are difficult to predict can be overcome with dexterity in interpreting the situation.
Pandit, 2021	**Critical Factor for Successful management of VUCA Times** There are 3 critical factors to manage the VUCA era. First one is organisation culture related to human resource policies, leadership style, accountability, communication and relationships with partner organisation. Second critical factor is partnership working, and last one is clear strategic intent.

The global pandemic affected all the healthcare system include the worker. So it is important to give some action to manage the changes of situation. Nowadays, it has become very difficult to achieve profitability and growth by gaining a sustainable competitive advantage with the effect of the VUCA phenomenon throughout the world. Based on the results of resumes from 29 articles, several strategies can be found that can be used as steps in dealing with the VUCA era, it is vision, understanding, clarity and agility. Each journal is grouped based on the 4 main strategies and then a percentage is made. The percentage of each strategy listed in the journal can be seen in Figure 1.
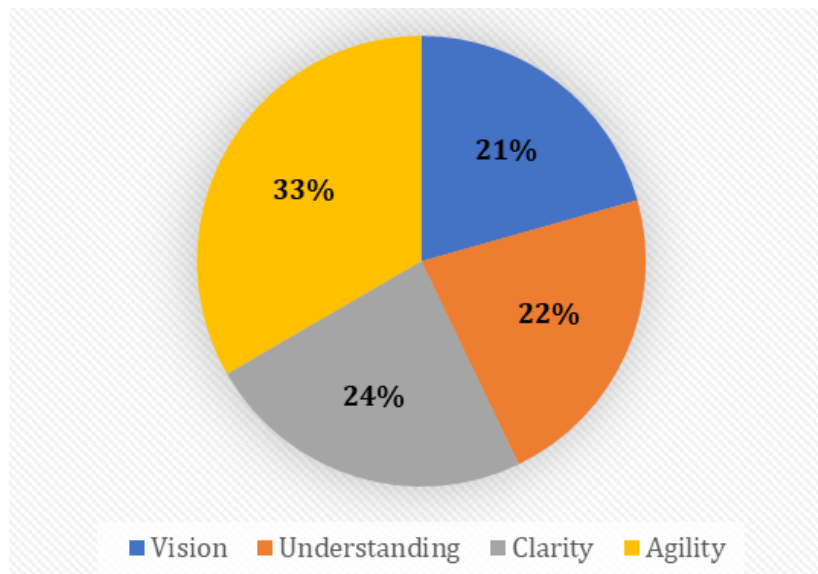

Fig. 1. Percentage of each strategies to manage companies in VUCA era

There are 13 of 29 (21%) articles said that a companies must be focus on their vision. A clear vision of where they want their organisations to be can better weather volatile environmental changes such as economic downturns or new competition by making business decisions to counter the turbulence while keeping the organisation's vision in mind. There are 14 of 29 articles (22%) state that understanding is an important strategy. Uncertainty can be countered with understanding, the ability of a leader to stop, look, and listen. To be effective in a VUCA environment, companies must learn to look and listen beyond their functional areas to make sense of the volatility and to lead with vision. There are 15 of 29 (24%) articles also stated other strategy can implemented is clarity. Complexity can be countered with clarity, the process to try to make sense of the chaos. In a VUCA world, chaos comes swift and hard. Leaders, who can quickly and clearly tune into all of the minutiae associated with the chaos, can make better, more informed business decisions. Finally, ambiguity can be countered with agility which stated on 21 of 29 articles (33%).

5. Conclusions. From the results of this research, it can be concluded that at this time VUCA is a condition that can't be avoided for us. Meanwhile, to overcome this condition, it is necessary to apply some strategies like vision, understanding, clarity, and agility. If you apply this solution, so the company can produce innovations or breakthroughs that are getting better, it will also have a good impact on the company's future sustainability. For further research, researchers suggest more in-depth studies, as well as presenting more detailed and up-to-date evidence.

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